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THE FERTILIZER SUPPLY 1967-68

NITROGEN

PHOSPHATE

POTASH

Fertilizer Stabilization
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General Situation

The U. S. supply of fertilizer materials for 1967-68 will amount to 16 million tons of primary plant nutrients -- nitrogen (N), phosphate (P_2O_5), and potash (K_2O). This is 8 percent more than last year's supply and over twice the quantity consumed in 1962-63.

Net supplies of nitrogenous materials will total 7,164,000 tons of N, up 16 percent from last year; phosphatic materials 4,948,000 tons of P_2O_5 , up 9 percent; and potash for fertilizers 3,848,000 tons of K_2O , down 5 percent from last year.

Countries in which the Agency for International Development (AID) has active agricultural programs received 57 percent of the plant nutrients exported by the U. S. in 1966-67. They received 58 percent of the N, 77 percent of the P_2O_5 (excluding phosphate rock), and 31 percent of the K_2O . Exports are expected to gain over last year in phosphate rock, anhydrous ammonia and materials needed by AID. AID requirements are greatest for ammonium phosphates, mixed fertilizers, and where possible urea as a replacement for ammonium sulfate.

Industry representatives were more pessimistic in mid-winter than they had been in the last decade. The tight supply in nitrogen had ended, although delays in construction and operating difficulties have been encountered with the new anhydrous ammonia plants. Phosphate production had not increased in the same proportion as capacity because of inventory levels at the beginning of the year and limited storage capacity. Potash shipments had been slowed because of inventories in the field.

Ability to deliver fertilizers at the time and in the form demanded by farmers is a critical problem. This means that large quantities have to be pre-positioned in consuming areas. Weather conditions can have a tremendous impact on the quantities of fertilizers sold. Favorable weather for an extended period means that planting will have been started and completed in a short time. Fertilizer supplies available locally are used with only limited replacement because of the distance from primary sources. Interruption of planting owing to rain provides time for partial refilling of distribution channels and results in increased fertilizer sales.

Nitrogen (N)

The supply of nitrogenous materials for domestic fertilizer use will total 7,164,000 tons of nitrogen (N), an increase of 16 percent over

1/ The fertilizer year is from July 1 through June 30.

last year (table 1). The supply from domestic sources will be up 18 percent. Increased AID requirements will take a larger share of anhydrous ammonia than last year for conversion into materials for shipment to developing countries.

Production -- U. S. production of anhydrous ammonia in 1967-68 is expected to be 13.1 million tons, 15 percent more than last year. Anhydrous ammonia for direct application and formulation of mixed fertilizers will be up 25 percent over 1966-67. Supplies of nitrogen solutions will be up 14 percent. Total liquids will make up 65 percent of the supply from domestic production. Supplies of solid ammonium nitrate and ammonium nitrate-limestone mixtures will be 7 percent larger than last year. Ammonium sulfate will increase 3 percent, and solid urea 20 percent. Other solid nitrogenous materials, largely ammonium phosphates, will increase 28 percent.

Imports -- Imports of nitrogen will total 729,000 tons of N, 9 percent more than last year. Anhydrous ammonia imports will increase 31 percent over last year. Urea and sodium nitrate are expected to be reduced sharply from last year. Ammonium nitrate and ammonium phosphates, primarily from Canada, will be about the same level as last year.

Exports -- Nitrogen exports are expected to total 998,000 tons, up 33 percent over 1966-67. Ammonium nitrate and ammonium sulfate will decline. Urea and anhydrous ammonia will more than double. Other products, primarily ammonium phosphates, will be 14 percent greater than last year.

Nitrogen capacities -- Anhydrous ammonia capacity on January 1, 1968, is estimated at 16,586,000 tons of NH_3 , an increase of 3,226,000 tons during 1967 (table 2). It is expected to be 20,031,000 tons by 1970 if announced construction of new plants and expansions are brought

Table 2. -- U. S. anhydrous ammonia capacity: Number of plants and estimated production capacity, 1966-70 1/

| | Unit | 1966 | 1967 | 1968 | 1969 | 1970 |
|---------------------------------|------------------|--------|--------|--------|--------|--------|
| Plants | number | 88 | 98 | 105 | 111 | 115 |
| Plant capacity, January 1 | 1,000 short tons | 11,042 | 13,360 | 16,586 | 18,771 | 20,031 |
| Plant start-up during year | 1,000 short tons | 2,318 | 3,226 | 2,185 | 1,260 | --- |

1/ Includes projected expansions and new construction.

Table 1. -- NITROGEN: Estimated supply of nitrogen for fertilizer purposes. United States and possessions, 1966-67 and 1967-68

| Item | 1966-67 ^{1/} | 1967-68 |
|--|-----------------------|---------------------|
| | 1,000 short tons | 1,000 short tons |
| <u>Supply from domestic production:</u> | | |
| <u>Solids:</u> | | |
| Ammonium nitrate ^{2/} ^{3/} | 830 | 887 |
| Ammonium sulfate ^{3/} | 557 | 577 |
| Urea | 380 | 459 |
| All other solids ^{4/} | 521 | 670 |
| Total solids | 2,288 | 2,593 |
| <u>Liquids:</u> | | |
| Ammonia (including aqua) | 2,669 | 3,338 |
| All other | 1,320 | 1,502 |
| Total liquids | 3,989 | 4,840 |
| Total (solids and liquids) ... | 6,277 | 7,433 |
| <u>Imports:</u> | | |
| Ammonium nitrate | 58 | 61 |
| Ammonium sulfate | 36 | 34 |
| Urea ^{3/} | 99 | 84 |
| Sodium nitrate | 43 | 26 |
| Ammonia (including aqua) | 322 | 422 |
| Nitrogen solutions | 25 | 16 |
| All other | 86 | 86 |
| Total | 669 | 729 |
| <u>Exports:</u> | | |
| Ammonium nitrate | 25 | 7 |
| Ammonium sulfate | 271 | 192 |
| Urea | 31 | 78 |
| Ammonia (including aqua) | 212 | 481 |
| All other | 210 | 240 |
| Total | 749 | 998 |
| NET DOMESTIC SUPPLY | 6,197 | 7,164 |

^{1/} Revised.

^{2/} Includes ammonium nitrate and ammonium nitrate-limestone mixtures.

^{3/} Adjusted for estimated quantity going into non-fertilizer uses.

^{4/} To avoid duplication the figure for "all other solids" has been adjusted by the estimated amount of imported ammonia used in primary materials.

into production on or near target dates. These estimates are based on published capacities and current information on construction schedules.

Urea capacity is estimated to have been 3,573,000 tons of material on January 1, 1968. Three plants due on stream by early 1969 will add another 980,000 tons. Ammonium nitrate capacity is estimated to be 7.3 million tons of material divided about 56 percent solid and 44 percent liquid. Total ammonium sulfate capacity is about 3.3 million tons of material. Production of nitrogen solutions demonstrate an ability to turn out 1.7 million tons on the basis of 100 percent N.

Phosphates (P_2O_5)

Net domestic supplies of P_2O_5 in 1967-68 are expected to total 4,948,000 tons, 9 percent more than in 1966-67 (table 3). Exports will be nearly four times imports.

Normal superphosphate -- Normal and enriched superphosphates will decline about 4 percent from last year. Imports of these materials are negligible. Exports will be about one-third less than last year.

Concentrated superphosphate -- Concentrated superphosphate supplies will be 6 percent larger than in 1966-67. Imports will be twice those of last year, and exports will be down 8 percent.

Ammonium phosphates -- Ammonium phosphate supplies will be 35 percent larger than last year. Imports, primarily from Canada, will be up 17 percent. Exports will increase 16 percent over 1966-67.

Phosphoric acid -- Supplies of wet-process phosphoric acid for fertilizer use will total 3.6 million tons of P_2O_5 this fertilizer year. This acid will be used for direct application and in producing concentrated superphosphate, ammonium phosphates, solid mixed fertilizers, superphosphoric acid, and in turn materials made from this acid. Superphosphoric acid is being used to produce significant quantities of liquid base N-P materials for the liquid mixed fertilizer industry.

Direct application of ammonium phosphates -- Direct application of selected ammonium phosphate grades totaled 1,921,701 tons in 1965-66, latest year for which data on these grades are available (table 4). Significant is the growth in 10-34-0 and 11-37-0 which are ammonium polyphosphates made from superphosphoric acid and anhydrous ammonia. The 18-46-0 strengthened its position as the leading material for direct application.

Ammonium phosphates, as the term is commonly used, include monoammonium and diammonium phosphates, mixtures of the two or combinations with ammonium nitrate and/or ammonium sulfate. The term may need to become

Table 3. -- PHOSPHATE: Estimated supply of P_2O_5 for fertilizer purposes, United States and possessions, 1966-67 and 1967-68.

| Item | 1966-67 <u>1/</u> | 1967-68 |
|--|-------------------|-------------------|
| | 1,000 | 1,000 |
| | <u>short tons</u> | <u>short tons</u> |
| Supply from domestic production: | | |
| Normal and enriched superphosphate ... | 1,182 | 1,134 |
| Concentrated superphosphate | 1,560 | 1,650 |
| Ammonium phosphate <u>2/</u> | 1,430 | 1,931 |
| All other <u>3/</u> | 1,000 | 843 |
| Total | 5,172 | 5,558 |
| Imports: | | |
| Concentrated superphosphate | 27 | 56 |
| Ammonium phosphate | 83 | 98 |
| All other | 55 | 59 |
| Total | 165 | 213 |
| Exports: | | |
| Normal superphosphate | 18 | 12 |
| Concentrated superphosphate | 305 | 281 |
| Ammonium phosphate | 427 | 493 |
| All other | 37 | 37 |
| Total | 787 | 823 |
| NET DOMESTIC SUPPLY | 4,550 | 4,948 |

1/ Revised.

2/ Liquid and solid ammonium phosphates excluding those combined with potash salts in the process of manufacture.

3/ Includes nitric phosphates, sodium phosphate, wet base goods, natural organics, phosphate rock, colloidal phosphate, basic slag, estimates of wet and furnace phosphoric acid for liquid and solid mixed fertilizers and direct application, and ammonium phosphates combined with potash salts in process of manufacture.

Table 4. -- Ammonium phosphates: U. S. consumption of selected grades for direct application, alternate fertilizer years 1959-60 through 1964-65, and 1965-66

| Grade | 1959-60 | 1961-62 | 1963-64 | 1964-65 | 1965-66 |
|---|------------|------------|------------|------------|------------|
| | short tons | short tons | short tons | short tons | short tons |
| 10-34-0 | --- | --- | 16,995 | 44,670 | 52,020 |
| 11-37-0 | --- | --- | 10,766 | 15,277 | 34,391 |
| 11-48-0 | 116,383 | 138,669 | 162,594 | 159,653 | 187,146 |
| 13-39-0 | 51,186 | 39,604 | 21,123 | 14,074 | 10,578 |
| 16-20-0 | 378,335 | 463,551 | 515,922 | 494,214 | 518,026 |
| 16-48-0 | 53,959 | 151,455 | 188,667 | 145,890 | 115,999 |
| 18-36-0 | 11,875 | 10,625 | --- | --- | --- |
| 18-46-0 | 20,388 | 81,253 | 338,571 | 504,481 | 787,264 |
| 21-53-0 | 30,881 | 39,068 | 32,007 | 29,985 | 35,811 |
| 23-23-0 | 12,910 | 19,079 | 18,276 | 21,443 | 23,673 |
| 24-20-0 | 13,822 | 20,319 | 16,149 | 12,418 | --- |
| 27-14-0 | 24,778 | 37,666 | 33,775 | 21,611 | 31,241 |
| 29-14-0 | --- | --- | 32,587 | 55,519 | 63,218 |
| 30-10-0 | 13,601 | 35,599 | 68,745 | 61,377 | 62,334 |
| Total | 728,118 | 1,036,888 | 1,456,177 | 1,580,612 | 1,921,701 |
| N content ^{1/} | 117,973 | 173,660 | 251,186 | 273,320 | 332,531 |
| P ₂ O ₅ content ^{1/} | 217,977 | 326,608 | 486,094 | 544,137 | 689,675 |

^{1/} N and P₂O₅ contents calculated.

"Consumption of Commercial Fertilizers and Primary Plant Nutrients in the United States," Statistical Reporting Service, U. S. Department of Agriculture.

even more inclusive as ammonium polyphosphates, urea-ammonium phosphates and other N-P combinations are added.

Table 4 does not include all ammonium phosphate grades. Furthermore, some N-P grades can be produced by mixing N and P_2O_5 source materials other than anhydrous ammonia and phosphoric acid, or by other chemical processes. The 16-20-0 is a good example of a material which is not necessarily an ammonium phosphate.

Phosphate capacities -- Current capacity to produce normal superphosphate is estimated to total 2 million tons of P_2O_5 .

Concentrated superphosphate capacity is about 2.4 million tons of P_2O_5 , double what it was in 1962.

Ammonium phosphate capacity is 3.4 million tons of P_2O_5 , over twice that in 1965.

Wet process phosphoric acid capacity amounted to 5.7 million tons of P_2O_5 on January 1, 1968. This capacity will grow to 6.5 million tons of P_2O_5 by the end of 1969.

Modern plants recently built are complexes capable of producing whatever type of concentrated phosphatic material that is in demand or can be changed to such production in a short time. The above capacities are based on current operations. Shifts in the kinds of fertilizers produced in order to meet market requirements should change estimates of capability to produce the various phosphatic fertilizer materials.

Potash (K_2O)

Net domestic supplies of potash in 1967-68 are expected to be 3,848,000 tons of K_2O , 5 percent less than last year (table 5). Imports will increase 8 percent over last year and exports will increase 6 percent.

Potassium chloride -- Supplies of domestic potassium chloride (muriate of potash) are expected to be 10 percent less than last year, totaling 2,557,000 tons of K_2O . One producer stopped production and another cut its labor force about one-half but off-setting this somewhat is the increased production by three other producers.

Imports are expected to reach 1,717,000 tons of K_2O , 11 percent more than last year. Exports are expected to be 6 percent more than last year.

Potassium sulfates -- Domestic deliveries of potassium sulfate and potassium magnesium sulfate are down 13 percent from last year. Imports will be about the same but exports are expected to be down 40 percent from last year.

Table 5. -- POTASH: Estimated supply of K_2O for fertilizer purposes, United States and possessions, 1966-67 and 1967-68.

| Item | 1966-67 ^{1/} | 1967-68 |
|---|-----------------------|------------|
| | 1,000 | 1,000 |
| | short tons | short tons |
| <u>Supply from domestic production:</u> | | |
| Potassium chloride | 2,839 | 2,557 |
| Potassium sulfate ^{2/} | 222 | 194 |
| All other | 35 | 35 |
| Total | 3,096 | 2,786 |
| <u>Imports:</u> | | |
| Potassium chloride | 1,547 | 1,717 |
| Potassium sulfate ^{2/} | 30 | 31 |
| All other | 66 | 31 |
| Total | 1,643 | 1,779 |
| <u>Exports:</u> | | |
| Potassium chloride | 581 | 627 |
| Potassium sulfate ^{2/} | 71 | 43 |
| All other | 26 | 47 |
| Total | 678 | 717 |
| NET DOMESTIC SUPPLY | 4,061 | 3,848 |

^{1/} Revised.

^{2/} Includes potassium-magnesium sulfate.

Potash capacities -- U. S. potash production capability, as of January 1, 1968, is estimated at 3,895,000 tons of K_2O . One plant closed and another cut back about 50 percent in 1967. Three other companies increased production capability during the year to reduce the net loss to 450,000 tons of K_2O .

Canadian capacity is estimated to have been 2.9 million tons of K_2O at the beginning of this year and will reach 4.4 million by the end of the year. By 1971, capacity will have climbed to 7.3 million tons of K_2O from nine companies. Seven of the companies are wholly or partly owned by U. S. firms.

Inventories

Stocks of nitrogenous and phosphatic fertilizers have increased over the last three years, stocks built up in readiness for the rush season and those on hand at the end of the year (table 6). The nitrogenous materials include in-plant and out-plant inventories held by primary producers. Anhydrous ammonia stocks reflect an expansion in storage capacity along with increased production capability. Changes in stocks of the other nitrogenous materials were less pronounced.

Wet process phosphoric acid stocks ahead of the rush season and at the end of the season have about doubled. Normal and enriched superphosphate holdings were essentially the same each year while total stocks of P_2O_5 increased more than 50 percent. The increases were in concentrated superphosphate and ammonium phosphate inventories. Plant and terminal storage facilities have been built to accommodate more efficient operation of jumbo plants, in order to take advantage of more economical transportation and to make adequate quantities available in the heavy consuming areas during the rush season. Recent developments in water transportation, unit train shipments and pipelines indicate that adequate storage is necessary in order to take full advantage of the best transportation services. These developments may mean that 1967 inventory levels may become the rule.

Foreign Trade in Fertilizers

The United States had been a net importer of nitrogen (N) in all recorded history until 1966 except for 1947, 1948, and 1949. The net export balance in those years resulted from United States efforts in the "Food for Peace Program" following World War II. The net export balance beginning in 1965-66 resulted from increased emphasis on the use of fertilizers by the Agency for International Development (AID) Programs (table 7). Chilean sodium nitrate, calcium nitrate, and calcium cyanamide formerly made up a large share of the imports but have been replaced by ammonium nitrate, urea, anhydrous ammonia and ammonium phosphates.

Prior to 1941 the United States shifted back and forth from an import to an export balance in phosphates (P_2O_5). Since 1941 an export

Table 6. -- End-of-month inventories of selected fertilizer materials: December, February and June, 1965 to 1967

| Material | Unit | December | | February | | June | |
|---------------------------------------|---------------------------------------|----------|---------------------|-----------------------------|-------------------------|------|---------------|
| | | 1965 | : 1966 : 1967 | 1965 | : 1966 : 1967 | 1965 | : 1966 : 1967 |
| Anhydrous ammonia ... | Tons of material | 766,196 | 1,088,590 1,682,296 | 772,713 1,162,824 1,366,843 | 168,238 345,809 823,030 | | |
| Ammonium nitrate, solid | " | 199,051 | 181,345 328,017 | 259,520 263,080 236,374 | 96,127 44,003 87,809 | | |
| Ammonium sulfate | " | 349,974 | 252,450 295,646 | 253,389 271,308 259,536 | 237,197 150,338 158,988 | | |
| Ammonium sulfate coke oven | " | 183,900 | 99,564 152,085 | 172,506 163,111 120,662 | 128,580 96,670 74,220 | | |
| Nitrogen solutions .. | Tons of N | 194,444 | 203,079 264,718 | 208,096 258,389 249,243 | 35,922 20,658 61,738 | | |
| Phosphoric acid wet process | Tons of P ₂ O ₅ | 55,486 | 89,126 96,274 | 39,886 61,384 94,115 | 42,116 64,230 88,219 | | |
| Total phosphates | " | 469,181 | 624,052 720,150 | 394,933 548,066 636,671 | 348,485 520,321 626,615 | | |
| Normal & enriched superphosphate | " | 175,646 | 162,347 186,086 | 190,534 181,285 168,986 | 142,119 132,966 133,128 | | |
| Concentrated super-phosphate | " | 161,291 | 266,085 283,673 | 119,693 183,822 284,696 | 114,512 229,529 291,864 | | |
| Ammonium phosphates . | " | 116,046 | 171,834 221,444 | 71,749 160,673 159,667 | 82,334 144,116 183,223 | | |
| Other phosphates | " | 16,198 | 23,786 28,947 | 12,957 22,286 23,322 | 9,520 13,710 18,400 | | |

Table 7. -- U. S. imports and exports of primary plant nutrients 1940 through 1967-68 (1,000 tons)

| Year | N | | P ₂ O ₅ | | K ₂ O | |
|------------------|---------|---------|-------------------------------|---------|------------------|---------|
| | Imports | Exports | Imports | Exports | Imports | Exports |
| Calendar year: | | | | | | |
| 1940 | 189 | 57 | 44 | 45 | 115 | 63 |
| 1941 | 165 | 35 | 63 | 52 | 13 | 57 |
| 1942 | 189 | 16 | 35 | 60 | 3 | 49 |
| 1943 | 208 | 28 | 36 | 92 | 17 | 70 |
| 1944 | 215 | 12 | 55 | 60 | 4 | 69 |
| 1945 | 254 | 28 | 33 | 64 | 4 | 68 |
| 1946 | 203 | 86 | 34 | 87 | 3 | 66 |
| 1947 | 203 | 258 | 38 | 93 | 25 | 68 |
| 1948 | 224 | 270 | 38 | 117 | 26 | 70 |
| 1949 | 233 | 320 | 45 | 137 | 18 | 70 |
| 1950 | 262 | 236 | 38 | 112 | 194 | 65 |
| 1951 | 338 | 72 | 56 | 168 | 308 | 69 |
| Fertilizer year: | | | | | | |
| 1951-52 | 290 | 73 | 39 | 94 | 264 | 63 |
| 1952-53 | 429 | 44 | 41 | 74 | 159 | 54 |
| 1953-54 | 421 | 62 | 62 | 88 | 121 | 54 |
| 1954-55 | 373 | 141 | 61 | 154 | 139 | 91 |
| 1955-56 | 330 | 255 | 56 | 153 | 170 | 180 |
| 1956-57 | 294 | 268 | 54 | 256 | 179 | 315 |
| 1957-58 | 305 | 227 | 59 | 246 | 213 | 252 |
| 1958-59 | 294 | 223 | 64 | 204 | 238 | 310 |
| 1959-60 | 298 | 188 | 82 | 177 | 282 | 418 |
| 1960-61 | 276 | 213 | 67 | 238 | 285 | 484 |
| 1961-62 | 337 | 234 | 87 | 283 | 282 | 503 |
| 1962-63 | 344 | 196 | 117 | 275 | 486 | 411 |
| 1963-64 | 453 | 264 | 100 | 400 | 691 | 526 |
| 1964-65 | 470 | 392 | 98 | 432 | 884 | 625 |
| 1965-66 | 529 | 546 | 125 | 441 | 1,332 | 664 |
| 1966-67 | 669 | 749 | 165 | 787 | 1,643 | 678 |
| 1967-68* | 729 | 998 | 213 | 823 | 1,779 | 717 |

* Estimated

balance has been maintained becoming more pronounced as AID requirements increased.

United States potash production was over one-half million tons of K_2O for the first time in 1941, at which time exports exceeded imports and continued thus through 1949. Imports were larger than exports in 1950 and continued to be so through 1955-56. Exports exceeded imports then for a period of six years, until Canadian potash production shifted the balance to imports.

Canada is the major source of U. S. fertilizer imports (table 8). Calcium nitrate, anhydrous ammonia, potassium sulfate, potassium sodium nitrate and sodium nitrate are the only important fertilizer imports for which Canada is not the main source.

Potassium chloride and anhydrous ammonia imports have increased since 1962-63 (table 9). Imported anhydrous ammonia is mostly from the Caribbean area primarily for use in Florida and Atlantic Coast finishing plants. The increased quantities of potassium chloride are a result of development of potash deposits in Canada involving a number of firms also engaged in fertilizer production in the U. S. Imports of lower analysis materials are declining.

Phosphate rock exports totaled 10,128,028 tons in 1966-67 with Canada and Japan each taking over two million tons (table 10). Japan was also an important market for potassium chloride. Countries with active AID agricultural programs took 93 percent of the ammonium sulfate, about two-thirds of it to India. They also got 65 percent of the urea, 79 percent of the concentrated superphosphate, 31 percent of the potassium chloride, 78 percent of the ammonium phosphates and 84 percent of the mixed fertilizers.

U. S. exports of phosphate rock more than doubled from 1962-63 to 1966-67 (table 11). The jump in ammonium sulfate tonnage in 1966-67 was primary because of AID procurement. Urea showed a marked gain. Concentrated superphosphate, ammonium phosphate, potassium chloride and mixed fertilizers all increased over the previous year.

Table 8. -- U. S. imports of selected fertilizer materials by country of origin 1966-67 1/

| Country of origin | Ammonium | | Calcium | | Urea | | Anhydrous ammonia | | Phosphate | | Potassium chloride | | Potassium sulfate | | Potassium nitrate | | Other | |
|----------------------|----------|---------|---------|---------|------------|------------|-------------------|------------|-----------|------------|--------------------|------------|-------------------|------------|-------------------|------------|------------|-----------|
| | sulfate | nitrate | nitrate | nitrate | short tons | short tons | short tons | short tons | crude | short tons | short tons | short tons | short tons | short tons | short tons | short tons | fertilizer | materials |
| Canada | 159,815 | 164,672 | --- | --- | 117,111 | 65,217 | --- | --- | 84 | 2,182,212 | --- | --- | 320 | --- | 147 | 16,630 | --- | --- |
| Mexico | 651 | --- | --- | --- | 52 | --- | --- | --- | 31,499 | --- | --- | --- | --- | --- | --- | 61 | --- | --- |
| Trinidad & Tobago | --- | --- | --- | --- | 43,311 | 282,683 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Netherlands Antilles | --- | 9,602 | --- | --- | 19,233 | 22,940 | --- | --- | 134,169 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Columbia | --- | --- | --- | --- | --- | 21,662 | --- | --- | --- | 3,000 | --- | --- | --- | --- | --- | --- | --- | --- |
| Chile | --- | --- | --- | --- | --- | --- | --- | --- | --- | 5,519 | --- | --- | --- | --- | 46,897 | --- | --- | --- |
| Norway | --- | --- | 41,653 | --- | 56,990 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 11 | --- | --- |
| Netherlands | --- | --- | 2,673 | --- | 2,856 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Belgium & Luxembourg | 5,842 | --- | 20 | --- | 24,805 | --- | --- | --- | --- | 14,697 | --- | --- | 2,315 | --- | --- | --- | --- | --- |
| France | --- | --- | 25 | --- | 2,565 | --- | --- | --- | --- | 134,358 | --- | --- | 11,012 | --- | 3,559 | 11 | --- | --- |
| West Germany | 4,263 | --- | 4,351 | --- | 280 | --- | --- | --- | 49 | 185,197 | --- | --- | 32,629 | --- | --- | 5 | --- | --- |
| Spain | --- | --- | --- | --- | --- | --- | --- | --- | --- | 30,149 | --- | --- | 3,362 | --- | --- | --- | --- | --- |
| Italy | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 11,078 | --- | --- | --- | --- | --- |
| Japan | 10 | --- | --- | --- | 7,125 | --- | --- | --- | 3,000 | --- | --- | --- | --- | --- | --- | 50 | --- | --- |
| Israel | --- | --- | --- | --- | --- | --- | --- | --- | --- | 19,368 | --- | --- | --- | --- | --- | --- | --- | --- |
| Other | --- | --- | 110 | --- | 829 | --- | --- | --- | --- | 3,689 | --- | --- | --- | --- | --- | 1,375 | --- | --- |
| Total | 170,581 | 174,274 | 48,832 | --- | 275,157 | 392,502 | --- | --- | 168,801 | 2,578,189 | --- | --- | 60,716 | --- | 50,603 | 18,143 | --- | --- |

1/ Other materials imported, mainly from Canada, were the following: 19,749 tons calcium cyanamide, 82,472 tons nitrogen solutions, 193,984 tons ammonium phosphates, 175,133 tons mixed fertilizers, 25,787 tons liquid phosphatic fertilizers and 63,247 tons of solid phosphatic fertilizer; also, 270,783 tons nitrate of soda from Chile. Other products were 24,519 tons potassium nitrate, 1,480 tons ammonium nitrate-limestone and 21,445 tons of nitrogenous fertilizers.

Table 9. -- U. S. imports of selected fertilizer materials, fertilizer years 1962-63 to 1966-67 inclusive

| Material | : 1962-63 | : 1963-64 | : 1964-65 | : 1965-66 | : 1966-67 |
|--|-------------|-------------|-------------|-------------|-------------|
| | : short ton | : short ton | : short ton | : short ton | : short ton |
| Anhydrous ammonia | --- | 90,803 | 177,747 | 258,179 | 392,502 |
| Ammonium nitrate 32% & over: | 254,524 | 217,735 | 180,069 | 178,435 | 174,274 |
| Ammonium nitrate-limestone.. | 65,702 | 49,549 | 3 | 1,580 | 1,480 |
| Ammonium sulfate | 225,553 | 227,704 | 192,819 | 153,324 | 170,581 |
| Sodium nitrate | 378,825 | 396,958 | 366,363 | 363,273 | 270,783 |
| Calcium nitrate | 48,460 | 55,001 | 40,312 | 31,805 | 48,832 |
| Urea | 213,886 | 280,416 | 246,342 | 201,611 | 275,157 |
| Calcium cyanamide | 33,987 | 28,320 | 22,074 | 18,839 | 19,749 |
| Nitrogen solutions | 73,559 | 82,042 | 73,685 | 80,358 | 82,472 |
| Synthetic nitrogenous material n.e.c. | 60,803 | 18,798 | 19,455 | 22,699 | 21,445 |
| Phosphate, crude | 172,230 | 187,756 | 160,077 | 149,472 | 168,801 |
| Ammonium phosphates | 153,850 | 106,432 | 111,579 | 182,170 | 193,984 |
| Potassium chloride | 682,864 | 1,043,303 | 1,399,281 | 2,142,266 | 2,578,189 |
| Potassium sulfate | 117,952 | 94,628 | 56,098 | 52,918 | 60,716 |
| Potassium-sodium nitrate .. | 29,894 | 29,533 | 10,723 | 23,250 | 50,603 |
| Mixed fertilizers | 162,184 | 146,052 | 160,076 | 186,240 | 175,133 |

Table 10-- U. S. exports of selected fertilizer materials by destination, 1966-67 1/

| Country of destination: | Ammonium sulfate | | Anhydrous ammonia | | Ammonium nitrate | | Urea | | Phosphate rock (all) | | Normal superphosphate | | Concentrated superphosphate | | Potassium chloride | | Ammonium phosphate | | Mixed phosphate fertilizers | |
|---------------------------------------|------------------|------------|-------------------|------------|------------------|------------|------------|------------|----------------------|------------|-----------------------|------------|-----------------------------|------------|--------------------|------------|--------------------|------------|-----------------------------|------------|
| | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons | short tons |
| Canada | 17,600 | 7,046 | 17,933 | 7,386 | 2,563,303 | 76,602 | 29,870 | 6,722 | 65,158 | 8,304 | | | | | | | | | | |
| Mexico | 21,040 | 155,851 | 4,584 | 2,462 | 366,586 | --- | 14,516 | 33,053 | 291 | 960 | | | | | | | | | | |
| El Salvador 2/ | 3,638 | 17 | --- | --- | 8,353 | --- | 11 | 4,414 | 16,796 | 12,022 | | | | | | | | | | |
| Costa Rica 2/ | --- | --- | --- | 24 | 1,677 | 1,939 | 2,545 | 16,727 | 11,874 | 684 | | | | | | | | | | |
| Central America, Other 2/ | 247 | 126 | 96 | 1,681 | 74 | 12 | 49 | 1,638 | 17,096 | 10,143 | | | | | | | | | | |
| West Indies, British .. | 3,655 | 35,784 | 1,217 | 163 | 1,261 | 1,082 | 3,365 | 9,414 | 5,654 | 7,467 | | | | | | | | | | |
| Dominican Republic 2/ .. | 10,118 | 20 | 8 | 502 | 641 | 1,071 | 5,382 | 4,000 | 390 | 2,817 | | | | | | | | | | |
| West Indies, Other .. | --- | 12 | 72 | --- | 175 | 391 | --- | 10,396 | 6,455 | 458 | | | | | | | | | | |
| Columbia 2/ | 354 | --- | 68 | 2,444 | 21,653 | 5,561 | 22,476 | 18,975 | 54,151 | 9,956 | | | | | | | | | | |
| Ecuador 2/ | --- | --- | 260 | 71 | 8 | --- | --- | 3,529 | 8,217 | 2,806 | | | | | | | | | | |
| Peru 2/ | --- | 11 | 5,937 | --- | 3,180 | --- | 568 | 551 | 1,879 | 501 | | | | | | | | | | |
| Chile 2/ | --- | 34 | 2,566 | --- | 7,716 | --- | 157,103 | 14,341 | 1,106 | 6 | | | | | | | | | | |
| Brazil 2/ | 27,137 | --- | --- | 475 | 171,084 | 2,122 | 65,552 | 48,790 | 40,526 | --- | | | | | | | | | | |
| Uruguay 2/ | --- | --- | --- | --- | 37,547 | --- | --- | 10 | 1,875 | 9 | | | | | | | | | | |
| South America, Other .. | --- | --- | 6,194 | 739 | 757 | --- | 14,720 | 1,749 | 17,596 | 1,023 | | | | | | | | | | |
| Sweden | --- | --- | --- | --- | 49,584 | --- | --- | 4,880 | --- | 18 | | | | | | | | | | |
| Denmark | --- | 8,772 | --- | --- | 11,305 | --- | --- | 996 | 11 | 317 | | | | | | | | | | |
| United Kingdom | --- | 26,952 | --- | --- | 385,330 | --- | --- | --- | 3,374 | --- | | | | | | | | | | |
| Netherlands | 131 | --- | 26 | --- | 101,300 | --- | 47,498 | 69 | --- | 51 | | | | | | | | | | |
| Belgium & Luxembourg .. | --- | --- | --- | 7 | 40,712 | --- | --- | --- | --- | --- | | | | | | | | | | |
| France | 30 | --- | --- | 102 | 155,288 | --- | 2,224 | --- | 7,143 | 30 | | | | | | | | | | |
| West Germany | --- | --- | 3 | 27 | 1,265,048 | --- | 11 | --- | 826 | 1,224 | | | | | | | | | | |
| Austria | --- | --- | --- | --- | 61,634 | --- | --- | --- | --- | --- | | | | | | | | | | |
| Spain | --- | --- | --- | 106 | 298,035 | --- | --- | --- | --- | 19 | | | | | | | | | | |
| Italy | --- | --- | --- | 102 | 1,134,524 | --- | --- | --- | 34,004 | 65 | | | | | | | | | | |
| Greece | --- | --- | 31,459 | 116 | --- | --- | --- | --- | 27,287 | 41 | | | | | | | | | | |
| Rumania | --- | --- | --- | --- | 89,206 | --- | --- | --- | --- | --- | | | | | | | | | | |
| Europe, Other | --- | 9,238 | 11 | 162 | 24,831 | --- | --- | 22 | --- | 12 | | | | | | | | | | |
| India 2/ | 834,024 | --- | --- | 38,967 | 60,323 | --- | 1,422 | --- | 565,987 | 33,730 | | | | | | | | | | |
| Pakistan 2/ | 269,638 | 2 | --- | --- | 17 | --- | 79,898 | 15,721 | 4 | --- | | | | | | | | | | |
| Ceylon 2/ | 48,824 | --- | --- | --- | --- | --- | --- | --- | --- | 1 | | | | | | | | | | |
| Thailand 2/ | --- | 10 | --- | 31 | --- | --- | 30 | --- | --- | --- | | | | | | | | | | |
| South Viet Nam 2/ | 5,583 | 392 | --- | --- | 58,302 | --- | --- | 20 | 14,131 | 481 | | | | | | | | | | |
| Rep. of the Philip- pines 2/ | 51 | 5 | 417 | --- | 59,166 | --- | --- | 7,960 | 6,475 | 83,799 | | | | | | | | | | |
| Rep. of Korea 2/ | --- | --- | --- | --- | 89,604 | --- | --- | --- | 500 | 43 | | | | | | | | | | |
| Japan | --- | --- | --- | --- | 2,029,907 | --- | 186,405 | 156,894 | 22 | --- | | | | | | | | | | |
| Asia, Other | 47 | 30 | 1,609 | 876 | 20,517 | 16 | 7,107 | 406,041 | 6,943 | 56 | | | | | | | | | | |
| Australia | 13,776 | 13,656 | 2,188 | --- | 756,302 | --- | 5,741 | 11,877 | 7,335 | 3,036 | | | | | | | | | | |
| New Zealand | 784 | --- | 5 | 101 | 237,757 | --- | --- | 119,748 | 17,178 | 257 | | | | | | | | | | |
| Oceania, Other | --- | --- | 55 | 5 | --- | --- | 13,223 | 38,188 | 2,565 | 5,595 | | | | | | | | | | |
| UAR (Egypt) | 32,698 | --- | --- | --- | --- | 53 | --- | --- | 31 | 135 | | | | | | | | | | |
| Sudan | --- | --- | --- | 11,172 | 3,177 | --- | --- | --- | --- | --- | | | | | | | | | | |
| Rep. of South Africa .. | 20 | --- | --- | 11 | 11,411 | --- | --- | 25,717 | 652 | 4 | | | | | | | | | | |
| Africa, Other | 1,510 | 266 | 220 | 296 | 726 | 166 | --- | 20 | 71 | 845 | | | | | | | | | | |
| Total | 1,290,944 | 258,224 | 74,928 | 68,028 | 10,128,028 | 89,015 | 663,801 | 968,009 | 955,289 | 186,915 | | | | | | | | | | |
| Amount to AID countries: | 1,199,614 | 617 | 9,352 | 44,195 | 519,352 | 10,705 | 525,526 | 299,117 | 741,029 | 156,998 | | | | | | | | | | |
| % to AID countries | 93 | --- | 12 | 65 | 5 | 12 | 79 | 31 | 78 | 84 | | | | | | | | | | |

1/ Other exports: 468 tons of nitrate of soda; 22,723 tons nitrogenous chemical fertilizers, n.e.c.; 29,437 tons organic materials; and 142,435 tons of potassic fertilizer materials n.e.c.

2/ Countries with active AID agricultural programs, all quantities not necessarily financed by AID.

Table II.-- U. S. exports of selected fertilizer materials, fertilizer years
1962-63 to 1966-67 inclusive

| Material | : 1962-63 | : 1963-64 | : 1964-65 | : 1965-66 | : 1966-67 |
|--|-------------|-------------|-------------|-------------|--------------|
| | : short ton | : short ton | : short ton | : short ton | : short ton |
| Anhydrous ammonia | 50,243: | 81,543: | 124,069 | : 131,486 | : 258,224 |
| Ammonium nitrate | 26,764: | 39,173: | 116,828 | : 85,258 | : 74,928 |
| Ammonium sulfate | 485,900: | 413,451: | 644,210 | : 412,074 | : 1,290,944 |
| Sodium nitrate | 1,499: | 1,794: | 569 | : 670 | : 468 |
| Urea | 24,769: | 44,446: | 41,783 | : 38,313 | : 68,028 |
| Synthetic nitrogenous materials n.e.c. | 9,486: | 45,847: | 47,395 | : 24,552 | : 22,723 |
| Phosphate rock | 4,930,901: | 6,663,973: | 7,072,641 | : 8,288,754 | : 10,128,028 |
| Normal superphosphate | 120,367: | 154,289: | 130,102 | : 85,111 | : 89,015 |
| Concentrated superphosphate: | 438,964: | 579,391: | 584,129 | : 563,032 | : 663,801 |
| Ammonium phosphate | 122,419: | 274,291: | 368,912 | : 461,520 | : 955,289 |
| Potassium chloride | 637,736: | 804,779: | 895,495 | : 955,272 | : 968,009 |
| Potassium sulfates | 35,411: | 50,943: | 128,405 | : 158,747 | : 142,435 |
| Mixed fertilizers | 87,656: | 164,881: | 214,967 | : 107,159 | : 186,915 |

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